START

0011362

October 15, 1990

Meeting Minutes Transmittal/Approval
Unit Managers Meeting: 200-BP-1 Operable Unit
450 Hills Street, Rm 47
September 20, 1990

From/
Appvl.: _____ Date: 10-16-90
Julie K. Erickson, 200-BP-1 Unit Manager, DOE-RL (A6-95)

Appvl.: _____ Date: 10/16/90
Douglas R. Sherwood, 200-BP-1 Unit Manager, EPA (B5-01)

Appvl.: _____ Date 10/16/90
Larry Goldstein, 200-BP-1 Unit Manager, WA Department of Ecology

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Meeting Minutes are attached. Minutes are comprised of the following:

Attachment #1 - Meeting Summary/Summary of Commitments and Agreements
Attachment #2 - Agenda for the Meeting
Attachment #3 - Attendance List
Attachment #4 - Commitments/Agreements Status List
Attachment #5 - Analytical Laboratory Readiness
Attachment #6 - Proposed Schedule for 200-BP-1 Groundwater Monitor Wells
Attachment #7 - Proposed FY 1991 200-BP-1 Work Scope
Attachment #8 - 200-BP-1 Task 6 Activities
Attachment #9 - Cost and Schedule Estimates for the Installation of Surface/Annular Seals
Attachment #10 - Column Leach Test

Prepared by: _____ Date: 10/16/90
SWEC Support Services

Concurrence by: _____ Date: 10/16/90
WHC RI Coordinator

200-BP-1 Operable Unit Managers Meeting
450 Hills Street, Room 47
September 20, 1990

Distribution:

Donna Lacombe, PRC
Ward Staubitz, USGS
Doug Fassett, SWEC (A4-35)
Jack Waite, WHC (B2-35)
Tom Wintczak, WHC (B2-15)
Mel Adams, WHC (H4-55)
Wayne Johnson, WHC (H4-55)
Rich Carlson, WHC (H4-55)
Brian Sprouse, WHC (H4-22)
Bill Price, WHC (SO-03)
Ralph O. Patt,
OR Water Resources Dept.
Doug Dunster, Golder Assoc.
Mike Thompson, DOE (A6-95)
Diane Clark, DOE (A5-55)

cc. Ronald D. Izatt (A6-95)
Director, DOE-RL, ERD
Ronald E. Gerton (A6-80)
Director, DOE-RL, WMD
Roger D. Freeberg (A6-95)
Chief, Rstr. Br., DOE-RL/ERD
Steven H. Wisness (A6-95)
Tri-Party Agreement Proj. Mgr
Richard D. Wojtasek (B2-15)
Prgm. Mgr. WHC
Mary Harmon, DOE-HQ (EM-442)

ADMINISTRATIVE RECORD: 200-BP-1; Care of Susan Wray, WHC (H4-51C)

Please inform Doug Fassett (SWEC) of deletions or additions to the distribution list.

Attachment #1

Meeting Summary and Summary of Commitments and Agreements
200-BP-1 Unit Managers Meeting
450 Hills Street, Room 47
September 20, 1990

1. EPA and USGS recommended that logs be made for completed bore holes. Wells will be logged in September if procedures are developed by WHC in time. The logs will then be given to the USGS for evaluation.

Action Item #2BP1.40: Status what the current logging capability is and how and when logging personnel will be mobilized. Action: Rich Carlson

2. Steve Trent presented the status of the installation of 200-BP-1 monitor wells (see Attachment #8). Two monitoring wells (699-49-57B and 699-50-53) were currently being installed. The plan is to drill 15 feet into the Rattlesnake Formation and if the aquifer is not encountered, drilling will continue.

   Doug Sherwood (EPA) said there was a lot of historical evidence of contaminated groundwater in monitoring well 50-53. *Therefore, preventing contamination during construction of well 50-53B, by providing an adequate seal, is a high priority.*

   Wells 52-57 and 52-55 are expected to be started the week of September 24.

   Steve Trent provided a list of constituents for purge water determination. Doug Sherwood (EPA) said that technetium 99 and cobalt 60 analyses were unnecessary. As a result Steve Trent (WHC) agreed to eliminate these analyses.

3. Marty Gardner (WHC) gave a presentation on cost and schedule estimates for well remediation (see Attachment #9). Various methods and associated costs for the installation of surface/annular seals, were described. A response was requested from EPA on the acceptability of the methods. EPA planned to approve the acceptable methods of well remediation in the week of September 24.

   Ward Staubitz (USGS) expressed a preference for the over-drill and 18 foot seal method of well remediation. However, he had concerns about keeping the hole open and thought that pressure grouting of the annulus between the open hole and the casing would be necessary.

Action Item #2BP1.41: EPA will provide a list of wells that require short and full annular seals. The list will be provided by September 28. Action: Doug Sherwood

4. John Relyea (WHC) gave a presentation on methods for column leach testing (see Attachment #10). EPA will be provided with a copy of the column leach procedure for doing saturated flow tests when it is completed.

EPA and WHC agreed to hold working meetings to resolve questions on the column leach test procedures.

Attachment #2

Agenda
200-BP-1 Unit Managers Meeting
450 Hills Street, Room 47
September 20, 1990

Introduction:

Status:

Action Items

Work Plan

Remedial Investigation

- Groundwater Well Construction
- Groundwater Well Remediation
- Column Leach Testing

FY 1991 Budget and Schedule

Issues:

Other Topics:

- Surface Area Radiation Reduction

Agreements and Commitments

Attachment #3

Attendance List
200-BP-1 Operable Unit Managers Meeting
September 20, 1990

NAME	ORG.	O.U. Role	PHONE
Cline, Chuck	Ecology	Geohydrology.	206-438-7556
Cross, Steve	Ecology	CERCLA Unit	206-459-6675
Erickson, Julie	DOE-RL	Unit Manager	509-376-3603
Drost, Brian	USGS	EPA Support	206-593-6510
Staubitz, Ward	USGS	EPA Support	206-593-6510
Lacombe, Donna	PRC	EPA Support	206-624-2692
Fassett, Doug	SWEC	GSSC	509-376-3136
Buckmaster, Mark	WHC	Asst. RI Coord.	509-376-1792
Caggiano, Joe	WHC	Support	509-376-4906
Delaney, C.D.	WHC	Support	509-376-9235
Gardner, Martin	WHC	Env. Field Services	509-373-5527
Carlson, Rich	WHC	RI Coordinator	509-376-9529
Relyea, John	WHC	Support	509-376-8300
Trent, Steve	WHC	Support	509-376-7226
Sherwood, Doug	EPA	Unit Manager	509-376-9529

Attachment #4

Commitments/Agreements Status List
200-BP-1 Operable Unit
September 20, 1990

Item No.	Action	Status
2BP1.35:	The question of unsealed wells will be incorporated into the joint (EPA/Ecology) letter concerning well remediation, rehabilitation. Action: Doug Sherwood	Open According to Chuck Cline the package should be available soon. (7/18/90) All parties agreed that wells in areas where no contamination is found may be temporarily cased and capped. (9/20/90)
2BP1.37:	Surface/near-surface detection techniques for pipes and leak areas and an engineering study by Bovay will be discussed at the next Unit Managers Meeting. Action: Rich Carlson. (7/18/90, BP1-UMM)	Closed Copies of the leak detection engineering study will be given to the regulators. (9/20/90)
2BP1.38:	Determine the USGS position on the feasibility of performing geophysical logging through cased wells. Action: Ward Staubitz for EPA (7/18/90, BP1.UMM)	Open Ward Staubitz (USGS) still questions whether qualitative logs are defensible. The USGS will be consulted in early Nov. for a final resolution. (9/20/90)
2BP1.39	Deep bore-holes through the cribs will be completed in November. Leach tests will be done soon after that. Describe the leach test methodology for 200-BP-1 at the next UMM meeting. Action: Rich Carlson (8/16/90, BP1.UMM)	Open (8/16/90)
2BP1.40	Status what the current logging capability is and how and when logging personnel will be mobilized. Action: Rich Carlson (9/20/90, BP1.UMM)	Open

2BP1.41	EPA will provide a list of wells that require short and full annular seals. The list will be provided by September 28. Action: Doug Sherwood (9/20/90, BP1.UMM)	Open

200-BP-1 UNIT MANAGERS MEETING AGENDA
September 20, 1990
9:30 - 11:00 AM
450 Hills St., Room 47

Introduction:

Status:

- Action Items
- Work Plan
- Remedial Investigation
  - o Groundwater Well Construction
  - o Groundwater Well Remediation
  - o Column Leach Testing
- FY 91 Budget and Schedule

Issues:

Other Topics:

- o Surface Area Radiation Reduction

Agreements and Commitments

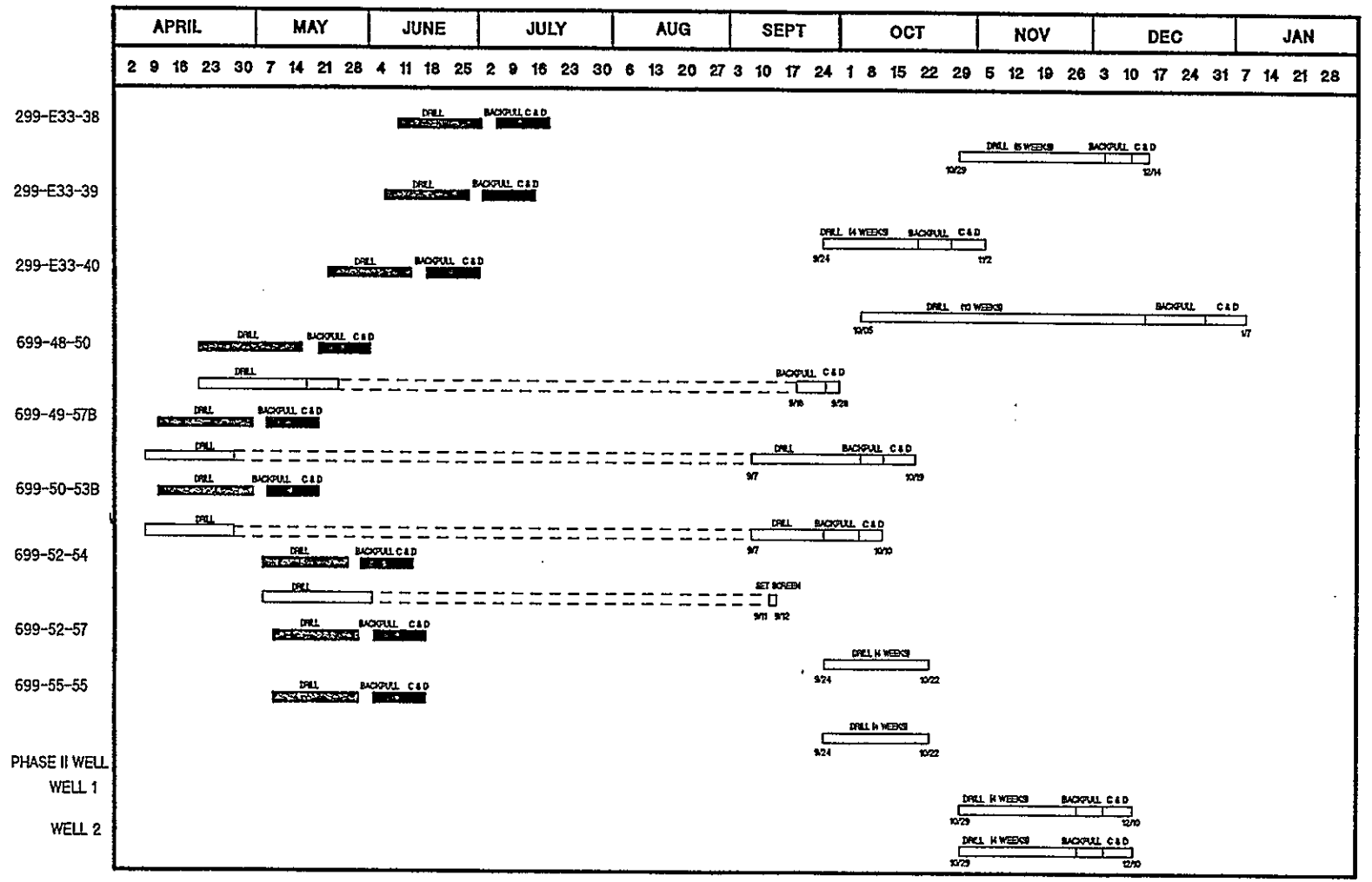
Attachment 5

ANALYTICAL LABORATORY READINESS

- WHC and PNL personnel have continued to meet over the past month to resolve issues related to the TPP, QAPP, and Technical/Administrative Procedures.
- The TPP is currently being signed by WHC personnel.
- It is expected that we will begin to initiated signatures on the QAPP this week.
- The QA readiness review was initated last week. WHC concerns remain regarding laboratory readiness in operator familiarity with technical and administrative procedures.
- Part of the above may be explained in the manner in which PNL currently does business (project by project).
- PNL performed employee training to the WHC SOW and PNL TPP/QAPP requirements for this project last Monday.
- The PNL 325 lab should be ready to accept samples next week to be analyzed for the 200-BP-1 parameters of interest list.

Attachment 6

PROPOSED SCHEDULE FOR 200-BP-1 GROUNDWATER MONITORING WELLS PROJECT 90E-GFW-121



ASSUMPTIONS

1) LAB IS APPROVED SEPT 24TH.

2) FOUR DRILL RIGS CAN BE USED AT ONE TIME AND BE SUPPORTED.

3) THREE DRILL RIGS CAN BE SUPPORTED AT ONE TIME FOR CHEM/RAD. SAMPLING.

4) WELLS 699-52-54, 699-52-57 AND 699-55-55 WILL NOT HAVE PERMANENT MATERIALS INSTALLED.

5) BASALT LAYER IN WELL 699-49-57B, 699-50-53B AND 299-E33-40 CAN BE DRILLED IN 10 DAYS.

6) RESTART OF DRILLING ACTIVITIES WAS SEPT. 7TH.

KEH INITIAL SCHEDULE

PROPOSED SCHEDULE 9/17/90

SEPTEMBER 17, 1990
N. WAGNER / GRNDWTR.GAL

Attachment 7

PROPOSED FY 91 200-BP-1 WORK SCOPE

- o Complete installation of nine groundwater monitoring wells
- o Perform well remediation activities on existing wells
- o Sample and analyze groundwater from existing & new wells
- o Perform sorption tests
- o Perform aquifer tests on the 3 uncased wells

UNDER ADDITIONAL FY 91 FUNDING

- o Perform crib/vadose zone boring (three holes)
- o Column leach tests
- o Phase II wells

Attachment 8

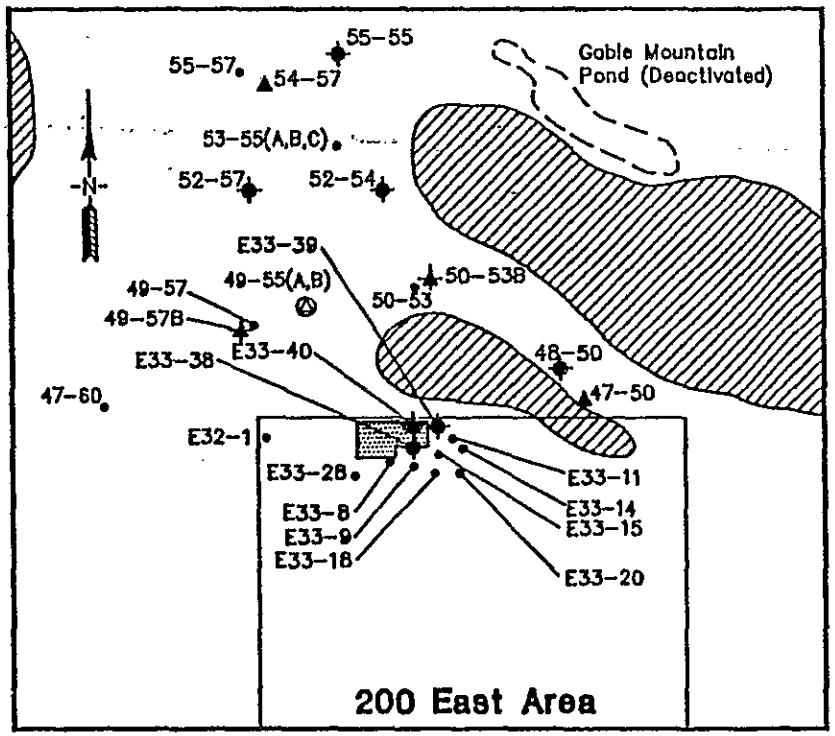
200-BP-1 TASK 6 ACTIVITIES

- **CURRENTLY DRILLING TWO MONITORING WELLS**

699-49-57 B

699-50-53 B

- **UPPERMOST CONFINED SYSTEM**
- **CURRENTLY DRILLING IN THE ELEPHANT MOUNTAIN BASALT**



Basalt Outcrops Above Water Table, as Inferred 6/84

200-BP-1 Operable Unit

Existing Unconfined Aquifer Monitoring Well

Existing Rattlesnake Ridge Confined Aquifer Monitoring Well

Existing Monitoring Well Cluster in Both the Unconfined and Confined (Ratttlesnake Ridge) Aquifer

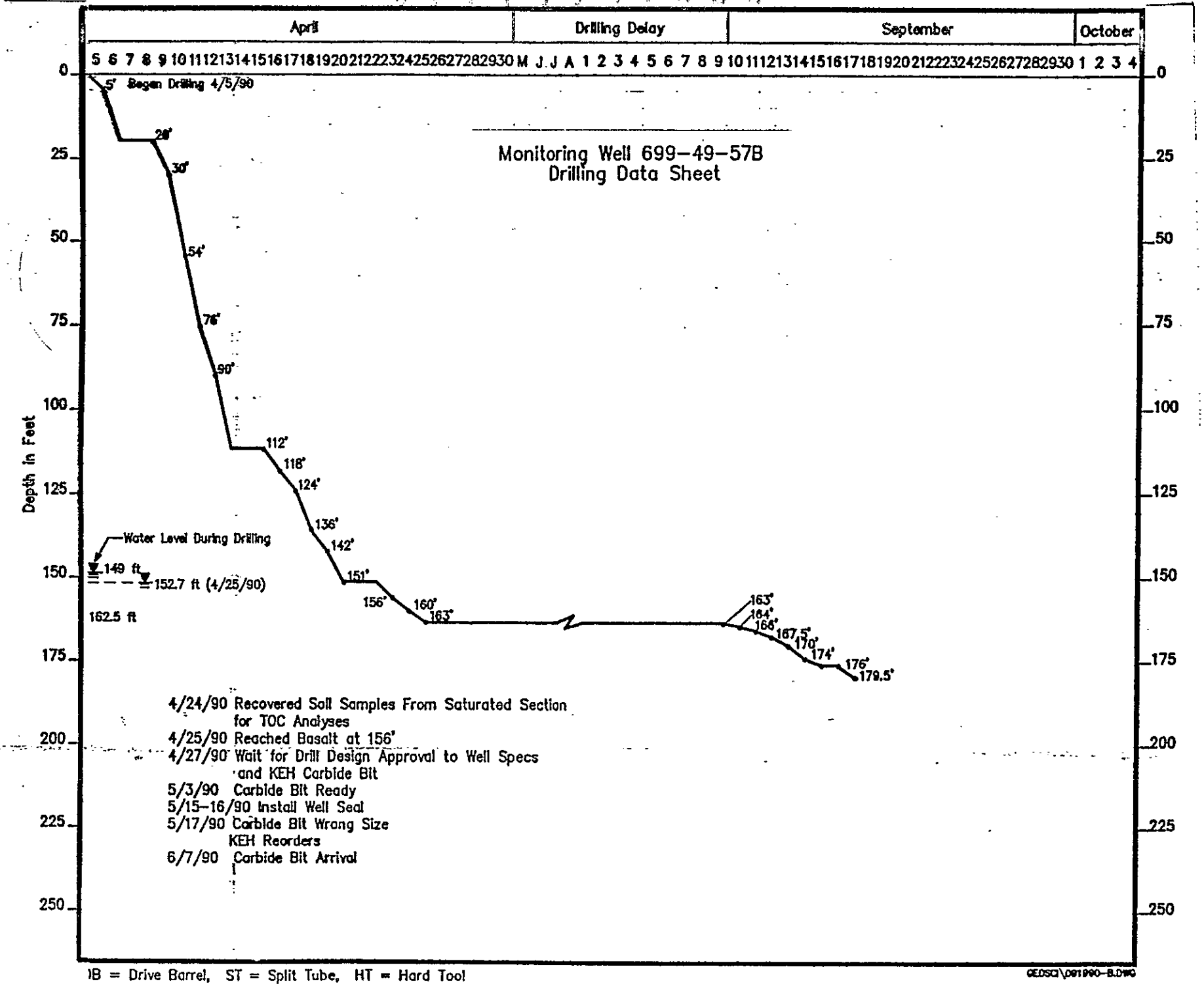
Anticipated Location for Proposed Monitoring Well in the Confined Aquifer (Rattlesnake Ridge) During Stage 1

Anticipated Location for Proposed Monitoring Well in the Unconfined Aquifer During Stage 1

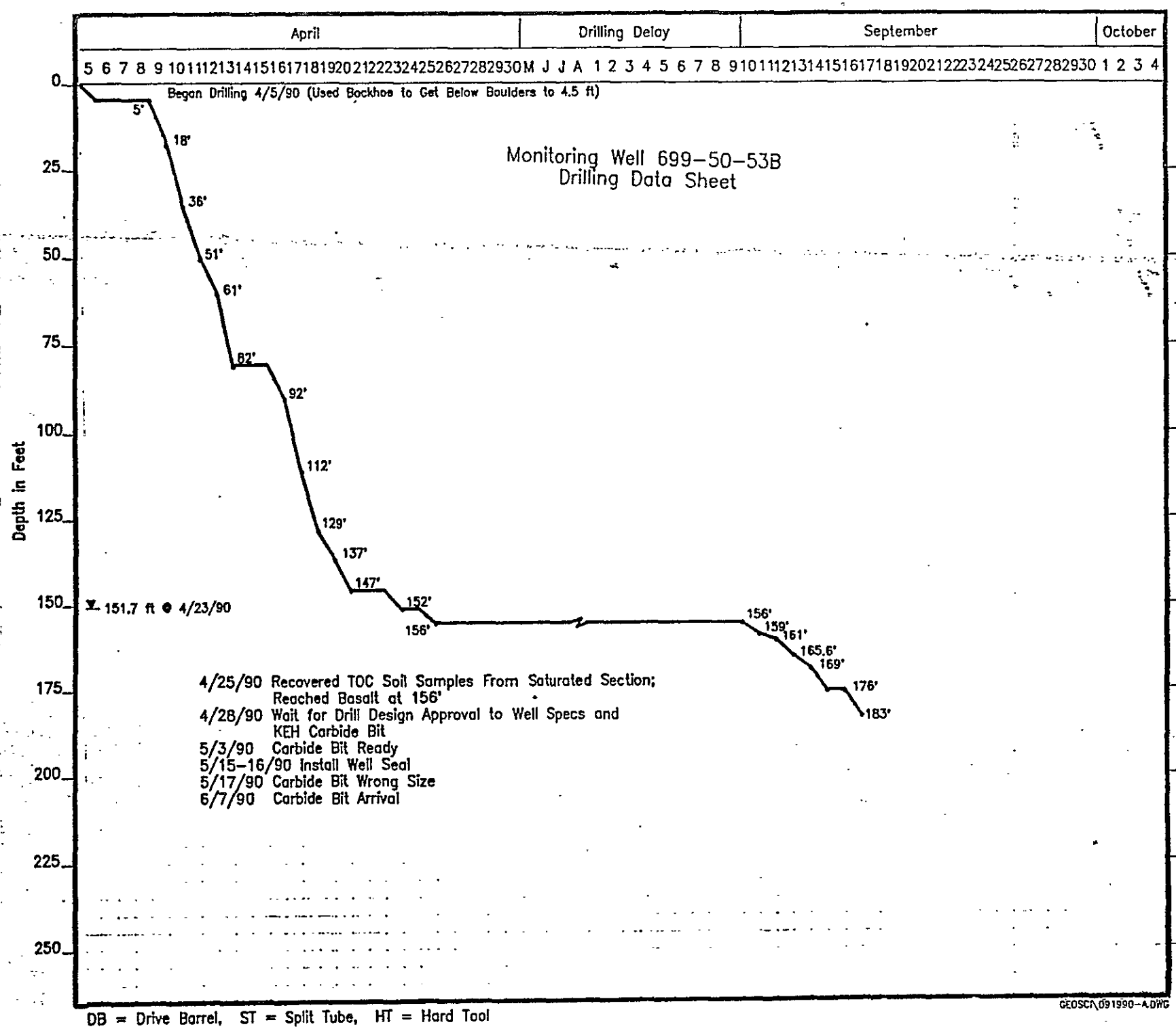
0 1 Mile

0 1 Kilometer

GEOSCI\081590-C


April
Drilling Delay
September
October
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 M J J A 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4
Depth in Feet
0
25
50
75
100
125
150
175
200
225
250
5' Began Drilling 4/5/90
28'
30'
54'
76'
90'
112'
118'
124'
136'
142'
151'
156'
160'
163'
163'
164'
166'
167.5'
170'
174'
176'
179.5'
Water Level During Drilling
149 ft
152.7 ft (4/25/90)
162.5 ft
Monitoring Well 699-49-57B
Drilling Data Sheet
4/24/90 Recovered Soil Samples From Saturated Section for TOC Analyses
4/25/90 Reached Basalt at 156'
4/27/90 Wait for Drill Design Approval to Well Specs and KEH Carbide Bit
5/3/90 Carbide Bit Ready
5/15-16/90 Install Well Seal
5/17/90 Carbide Bit Wrong Size KEH Reorders
6/7/90 Carbide Bit Arrival
)B = Drive Barrel, ST = Split Tube, HT = Hard Tool
GEOSCI\091990-B.DWG

9 1 1 1 3 9 3 1 6 3 6



DB = Drive Barrel, ST = Split Tube, HT = Hard Tool

OTHER CONSTRUCTION/COMPLETION ACTIVITIES

- **699-52-54**

  TEMPORARY 8-INCH SCREEN SET

  CONSTITUENTS FOR PURGE WATER DETERMINATION

  CYANIDE
  NITRATE
  COBALT-60
  TECHNETIUM-99
  TOTAL ALPHA
  TOTAL BETA

  * CONTAMINANTS POTENTIALLY 10X MCL

- **699-48-50**

  WELL COMPLETION ACTIVITIES INITIATED

Attachment 9

COST AND SCHEDULE ESTIMATES

FOR

INSTALLATION OF SURFACE/ANNULAR SEALS

9/19/90

COST ESTIMATE FOR INSTALLING SURFACE/ANNULAR WELL SEALS

METHOD: Excavate around existing casing to a depth of 18 feet below top of ground surface. Place a 20 foot length of 12 inch ID carbon steel casing over the existing 8 inch casing stick-up. Backfill excavation around 12 inch and compact. Pressure grout annulus between the 8 and 12 inch and remove the 12 inch casing.

ASSUMPTIONS: Existing 250 foot well completed with 8 inch ID carbon steel casing. No unusual conditions are encountered. The well is not located in a radition area. A backhoe is used for excavation (1:1 slope).

TIME FRAME: 3 Days

MATERIALS:	20 foot of 12 inch ID carbon steel casing		$ 300
	Grout (incl. 50% excess)		200
	Surface Pad and Barrier Posts (cement, rebar, steel posts)		200
LABOR:	KEH	(provide equipment, personnel, supervision, health and safety)	6000
	WHC	EFSG Field/Office Support	2,000
		Health Physics Support (HPT)	800
WASTE HANDLING/DISPOSAL: Includes sampling, transport, and disposal of soil and excess cement/water.			5000
Cost Summary:	Materials		700
	Labor		8,800
	Waste Handling/Disposal		5,000
		Sub Total:	$ 14,500
		25% Contingency:	3,625
		Total:	$ 18,125

9/19/90

COST ESTIMATE FOR INSTALLING SURFACE/ANNULAR WELL SEALS

METHOD:	Excavate around existing casing to a depth of 18 feet below top of ground surface. Backfill excavation with concrete.		
ASSUMPTIONS:	Existing 250 foot well completed with 8 inch ID carbon steel casing. No unusual conditions are encountered. The well is not located in a radition area; therefore, the excavated soil can be spread over the site or hauled to a gravel pit. A backhoe is used for excavation (1:1 slope). Concrete is delivered from a batch plant and placed directly from the truck.		
TIME FRAME:	5 Days		
MATERIALS:	Grout (incl. 50% excess)		$ 23,300
	Misc. (rebar)		1,000
	Surface Pad and Barrier Posts (cement, rebar, steel posts)		200
LABOR:	KEH	(provide equipment, personnel, supervision, health and safety)	10,000
	WHC	EFSG Field/Office Support	3,300
		Health Physics Support (HPT)	800
WASTE HANDLING/DISPOSAL: Includes sampling, transport, and disposal of soil and excess cement/water.			5,000
Cost Summary:	Materials		$ 24,500
	Labor		14,100
	Waste Handling/Disposal		4,000
		Sub Total:	$ 43,600
		25% Contingency:	10,900
		Total:	$ 54,500

9/19/90

COST ESTIMATE FOR INSTALLING SURFACE/ANNULAR WELL SEALS

METHOD:	Over drill existing casing. Pressure grout annulus between open hole and casing.		
ASSUMPTIONS:	250 foot well completed with 8 inch ID carbon steel casing. No unusual conditions are encountered. the well is not located in a rediation area. The soil matrix allows auger penetration to required depth and is stable enough to complete grouting. An auger rig is used to overdrill casing with a hollow stem auger.		
TIME FRAME:	4.5 Days		
MATERIALS:	Grout		$ 200
	Misc. (auger bit inserts)		500
	Surface Pad and Barrier Posts (cement, rebar, steel posts)		200
LABOR:	KEH	(provide equipment, personnel, supervision, health and safety)	9,000
	WHC	EFSG Field/Office Support	3,000
		Health Physics Support (HPT)	1,000
		Site Services (haul water)	500
WASTE HANDLING/DISPOSAL: Includes sampling, transport, and disposal of soil and excess cement/water.			5,000
Cost Summary:	Materials		900
	Labor		13,500
	Waste Handling/Disposal		5,000
		Sub Total:	$ 19,400
		25% Contingency:	4,850
		Total:	$ 24,250

9/19/90

COST ESTIMATE FOR INSTALLING SURFACE/ANNULAR WELL SEALS

METHOD:	Perforate upper 18 feet of 8 inch casing, install 4 inch ID carbon steel casing to 18 feet below ground level, and pressure grout annulus.		
ASSUMPTIONS:	No unusual conditions are encountered. The well is not located in a radition area. A cable tool rig is used for perforating casing, installing liner, and placing grout.		
TIME FRAME:	4 Days		
MATERIALS:	20 feet of 4 inch ID carbon steel casing		$ 100
	Grout (including 50% excess)		100
	Misc. (perforator knives, cement basket)		1,000
	Surface Pad and Barrier Posts (cement, rebar, steel posts)		200
LABOR:	KEH	(provide equipment, personnel, supervision, health and safety)	8,000
	WHC	EFSG Field/Office Support	2,600
		Health Physics Support (HPT)	1,000
		Site Services (haul water)	500
WASTE HANDLING/DISPOSAL: Includes sampling, transport, and disposal of soil and excess cement/water.			5,000
Cost Summary:	Materials		$ 1,400
	Labor		12,100
	Waste Handling/Disposal		5,000
		Sub Total:	$ 18,500
		25% Contingency:	4,625
		Total:	$ 23,125

9/19/90

COST ESTIMATE FOR INSTALLING SURFACE/ANNULAR WELL SEALS

METHOD: Perforate entire length of casing, install 4 inch ID carbon steel casing to to just above top of water, and pressure grout the annulus between casing and liner.

ASSUMPTIONS: 250 foot well completed with 8 inch ID carbon steel casing. No unusual conditions are encountered. The well is not located in a radition area. A cable tool rig is used for perforating casing, installing liner, and placing grout.

TIME FRAME: 10 Days

MATERIALS:	230 feet of 4 inch ID carbon steel casing		$ 1,000
	Grout (including 50% excess)		1,000
	Misc. (perforator knives, cement basket, casing centralizers)		2,500
	Surface Pad and Barrier Posts (cement, rebar, steel posts)		200
LABOR:	KEH	(provide equipment, personnel, supervision, health and safety)	20,000
	WHC	EFSG Field/Office Support	6,600
		Health Physics Support (HPT)	3,300
		Site Services (haul water)	2,000

WASTE HANDLING/DISPOSAL: 5,000
Includes sampling, transport, and disposal of soil and excess cement/water.

Cost Summary:	Materials	4,700
	Labor	31,900
	Waste Handling/Disposal	5,000
	Sub Total:	$ 41,600
	25% Contingency:	10,400
	Total:	$ 52,000

9/19/90

COST ESTIMATE FOR INSTALLING SURFACE/ANNULAR WELL SEALS

METHOD: Perforate entire length of casing, install 4 inch ID stainless steel screen and casing to bottom of well, place filter pack and pressure grout annulus.

ASSUMPTIONS: Existing 250 foot well completed with 8 inch ID carbon steel casing. No unusual conditions are encountered. The well is not located in a radition area. A cable tool rig is used for perforating casing, installing liner and screen, and placing grout.

TIME FRAME: 11 Days

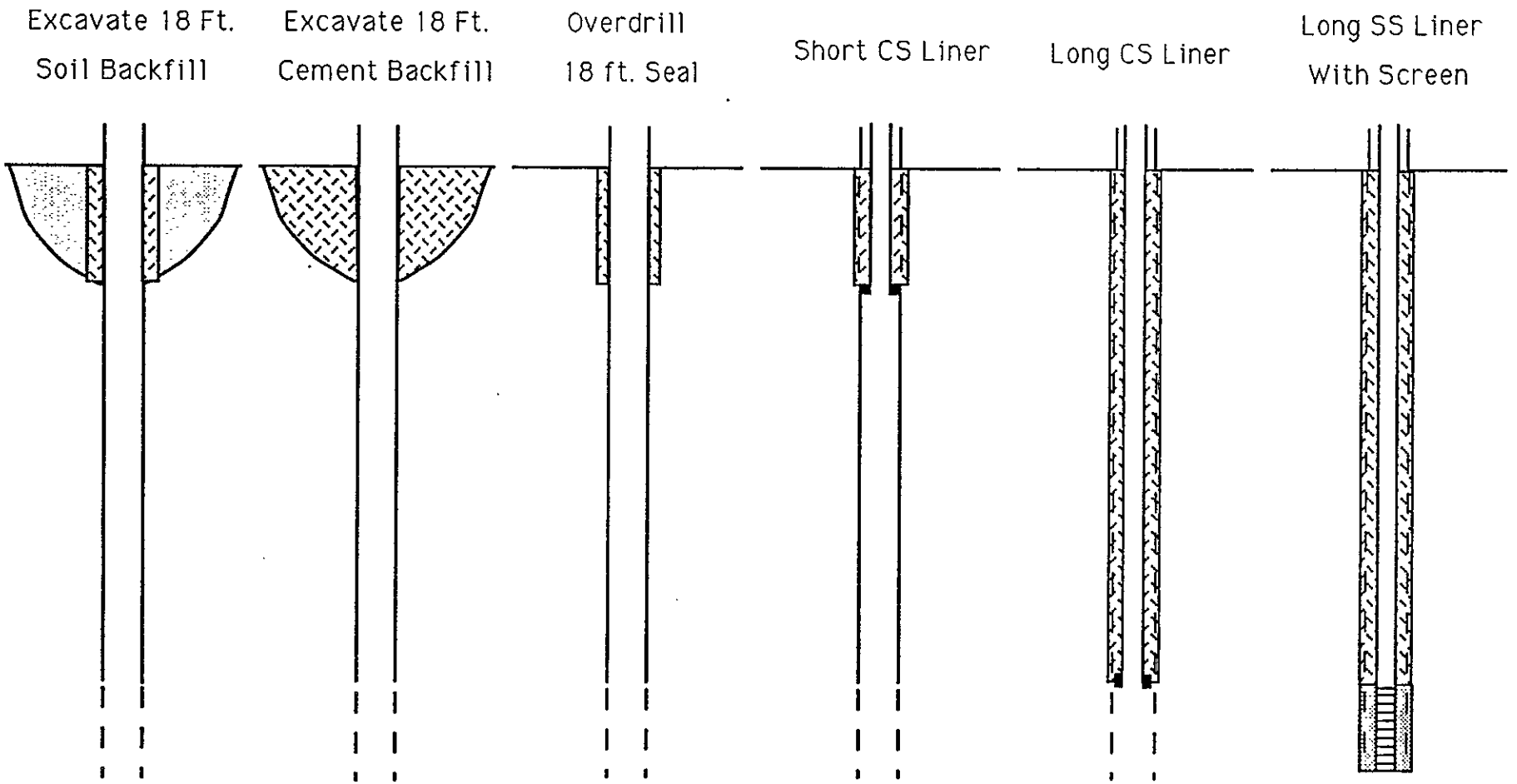
MATERIALS:	230 feet of 4 inch ID stainless steel casing		$ 5,600
	20 foot 4 inch ID stainless steel screen		1,000
	Grout (cement and bentonite-incl. 50% excess)		1,500
	Misc. (perforator knives, centralizers, sand and gravel pack material)		5,000
	Surface Pad and Barrier Posts (cement, rebar, steel posts)		200
LABOR:	KEH	(provide equipment, personnel, supervision, health and safety)	22,000
	WHC	EFSG Field/Office Support	7,300
		Health Physics Support (HPT)	3,300
		Site Services (haul water)	2,000

WASTE HANDLING/DISPOSAL: 5,000
Includes sampling, transport, and disposal of soil and excess cement/water.

Cost Summary:	Materials	$ 13,300
	Labor	34,600
	Waste Handling/Disposal	5,000
	Sub Total:	$ 52,900
	25% Contingency:	13,225
	Total:	$ 66,125

9/19/90

SUMMARY OF PROPOSED METHODS FOR INSTALLATION OF SURFACE/ANNULAR SEALS



9/19/90

WELL NO.	ZONE	SCRUB	PUMP TYPE	PR NO.	INTAKE DEPTH	COMMENTS	WATER COLUMN LENGTH	PURGE TANKS	STATUS	DATE DEVELOPED	DEVELOP ORDER	POST DEV. NTU'S	GAL. PUMPED
2-E32-1	NO	YES	SUBMERSIBLE	90-119		READY TO DEVELOP		1	DELETED FROM PROJECT				
2-E33-1	YES	YES	SUBMERSIBLE	90-120	228.00	SURFACE ZONE.	11.50	1	DEVELOPED	9/5/90	17	3.6	84.0
2-E33-3	YES	YES	SUBMERSIBLE	90-121	228.00	SURFACE ZONE		1	DEVELOPED	9/7/90	18	.8	876.0
2-E33-4	YES	YES	NONE	90-122	228.00	SURFACE ZONE	7.54	NONE	DEVELOPED	9/13/90	20	.5	453.0
2-E33-5	YES	YES	SUBMERSIBLE	90-123	235.00	SURFACE ZONE	12.67	1	DEVELOPED	8/29/90	16	2.0	660.0
2-E33-7	YES	YES	NONE	90-124	228.00	SURFACE ZONE	10.56	NONE	DEVELOPED	9/17/90	21	.3	393.0
2-E33-8	NO	YES	SUBMERSIBLE	90-125		READY TO DEVELOP		1	DELETED FROM PROJECT				
2-E33-9	YES	YES	NONE	90-126		ASBESTOS/RAD. ZONE!		NONE	DELETED FROM PROJECT				
2-E33-11	YES	YES	NONE	90-127		CONTAMINATED!		NONE	DELETED FROM PROJECT				
2-E33-12	NO	YES	HYDROSTAR	90-128	323.00	<5 NTU NOT MET	193.70	NONE	READY TO SAMPLE	8/17/90	13	27.0	1964.0
2-E33-13	YES	YES	NONE	90-129	228.00	CONTAMINATED/R.ZONE!	12.54	NONE	DEVELOPED	9/11/90	19	2.3	412.0
2-E33-14	NO	YES	HYDROSTAR	90-130	222.86		10.40	NONE	READY TO SAMPLE	8/14/90	11	1.2	206.0
2-E33-15	YES	YES	NONE	90-131	233.00	CONTAMINATED!	30.34	NONE	DEVELOPED	9/19/90	22	3.0	1010.0
2-E33-18	YES	YES	SUBMERSIBLE	90-132	253.00	SURFACE ZONE.	23.97	1	READY TO SAMPLE	8/21/90	14	1.0	1118.0
2-E33-20	YES	YES	NONE	90-133		CAVE IN POTENTIAL!		NONE	DELETED FROM PROJECT				
2-E33-24	YES	YES	SUBMERSIBLE	90-134	239.00	SURFACE ZONE.	18.80	1	DEVELOPED	8/27/90	15	.7	812.0
2-E33-26	NO	YES	HYDROSTAR	90-135	235.00		10.11	1	READY TO SAMPLE	8/16/90	12	.7	888.0
2-E33-28		N/A	HYDROSTAR	90-136	274.88	NO MAINT. REQUIRED.		1	READY TO SAMPLE				
2-E34-1	NO	YES	HYDROSTAR	90-137	229.00		23.78	1	READY TO SAMPLE	8/13/90	10	3.0	386.3
6-47-50	NO	YES	HYDROSTAR	90-105	271.00	<5 NTU REQ. NOT MET		1	READY TO SAMPLE	6/6/90	3	5.6	1470.0
6-47-60	NO	N/A	SUBMERSIBLE	90-106		NO MAINT. REQUIRED.		1	READY TO SAMPLE				
6-49-55A	NO	YES	HYDROSTAR	90-107	133.71	DTW-126.11,DTB-142.0	15.89	2	READY TO SAMPLE	6/26/90	9	2.9	101.0
6-49-55B	NO	YES	HYDROSTAR	90-108	201.00	<5 NTU REQ. NOT MET		NONE	READY TO SAMPLE	5/31/90	1	9.2	2000.0
6-49-57	NO	N/A	SUBMERSIBLE	90-109	155.00	NO MAINT. REQUIRED.		2	READY TO SAMPLE				
6-50-53	NO	YES	HYDROSTAR	90-110	157.00	DTW-152.45,DTB-163.0	10.58	1	READY TO SAMPLE	6/11/90	4	3.3	299.0
6-53-55A	NO	YES	HYDROSTAR	90-111	221.57	DTW-172.47,DTB-260.4	87.93	1	READY TO SAMPLE	6/12/90	6	2.7	350.9
6-53-55B	NO	YES	HYDROSTAR	90-112	242.00			NONE	READY TO SAMPLE	6/4/90	2	4.1	1126.0
6-53-55C	NO	YES	HYDROSTAR	90-113	201.67	DTW-173.00,DTB-223.0	50.00	NONE	READY TO SAMPLE	6/12/90	5	4.0	225.7
6-54-57	NO	YES	HYDROSTAR	90-114	241.45	DTW-172.20,DTB-322.0	149.80	NONE	READY TO SAMPLE	6/20/90	8	3.2	1051.0
6-55-57	NO	YES	HYDROSTAR	90-115	171.47	DTW-163.65,DTB-179.9	16.25	NONE	READY TO SAMPLE	6/14/90	7	3.0	287.0

Well Remediation Action Items

THE FOLLOWING REQUIRE RESOLUTION PRIOR TO THE COMMENCEMENT OF WELL REMEDIATION ACTIVITIES

- METHOD TO BE USED FOR INSTALLATION OF SURFACE SEAL
- METHOD TO BE USED FOR INSTALLATION OF FULL ANNULAR SEAL
- IDENTIFY WELLS REQUIRING SURFACE SEAL ONLY
- IDENTIFY WELLS REQUIRING FULL ANNULAR SEAL
- IDENTIFY WELLS REQUIRING REDUCTION IN LENGTH OF OPEN INTERVAL ACROSS AQUIFER
- METHOD FOR REDUCING OPEN INTERVAL ACROSS AQUIFER - CEMENT? SAND? BENTONITE?
  - Method used needs to be acceptable as part of abandonment
- WHAT IS REQUIREMENT FOR PLACING A PLUG AT THE BOTTOM OF EACH WELL?
  WHAT TYPE OF PLUG IS REQUIRED? CEMENT? BENTONITE?

Attachment 10

COLUMN LEACH TEST

PURPOSE: To investigate the mobility of vadose zone contaminants caused by infiltrating rainwater

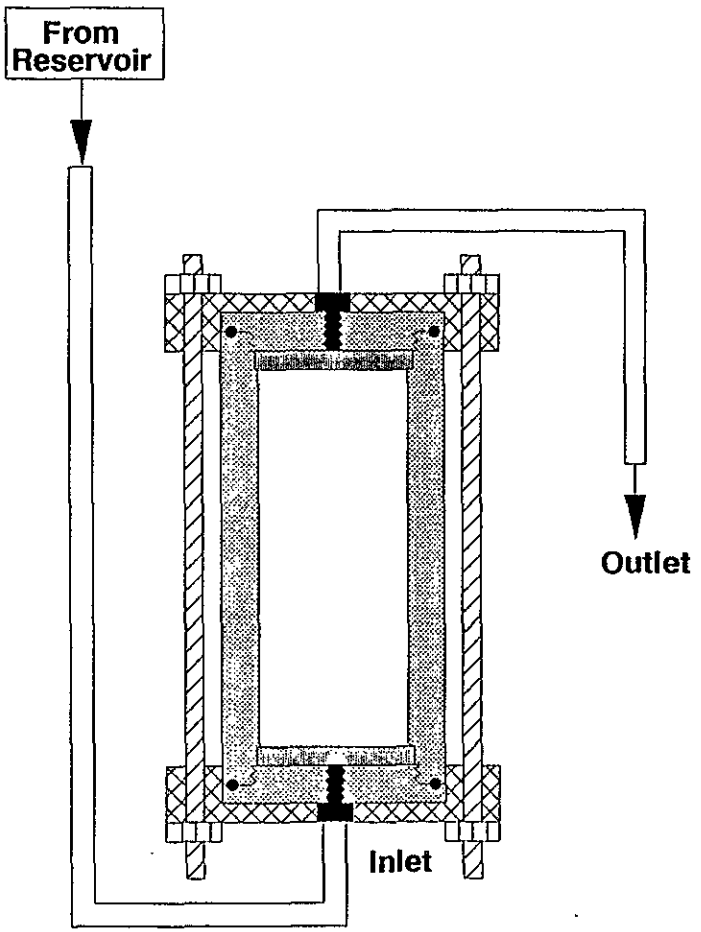
(1) Identify mobile contaminants in waste zone

(2) Determine transport coefficients through soil column

COLUMN LEACH PROCEDURE

- SAMPLE PREPARATION
  - Compacted Samples
  - Undisturbed or Intact Samples
- COLLECTION OF EFFLUENT
  - Preservation specified by Test or Work Plan
- DATA TO BE RECORDED
- SATURATED LEACH PROCEDURE COMPLETE
- UNSATURATED LEACH PROCEDURE IN PREPARATION
  - Ready 2/91

SATURATED FLOW

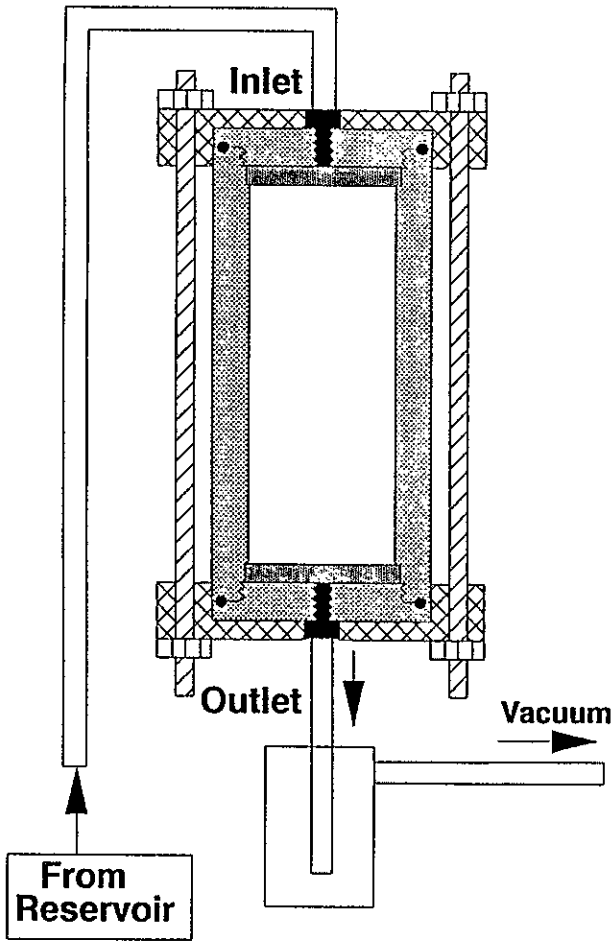


(+) Better than Batch/Bottle Leaching
(+) Upward Flow to eliminate trapped air
(+) Simple to run
(+) Hydraulic Conductivity measured
(+) Head controls flow rate

(-) Not Conservative compared to Field Conditions

(-) Solution to Solid Ratio too high by a Factor of about 4

UNSATURATED FLOW



(+) Closer to field conditions

(-) Solid/Solution Ratio about 2X field

(-) Flow rate under external control

(-) Pore Volume not a priori

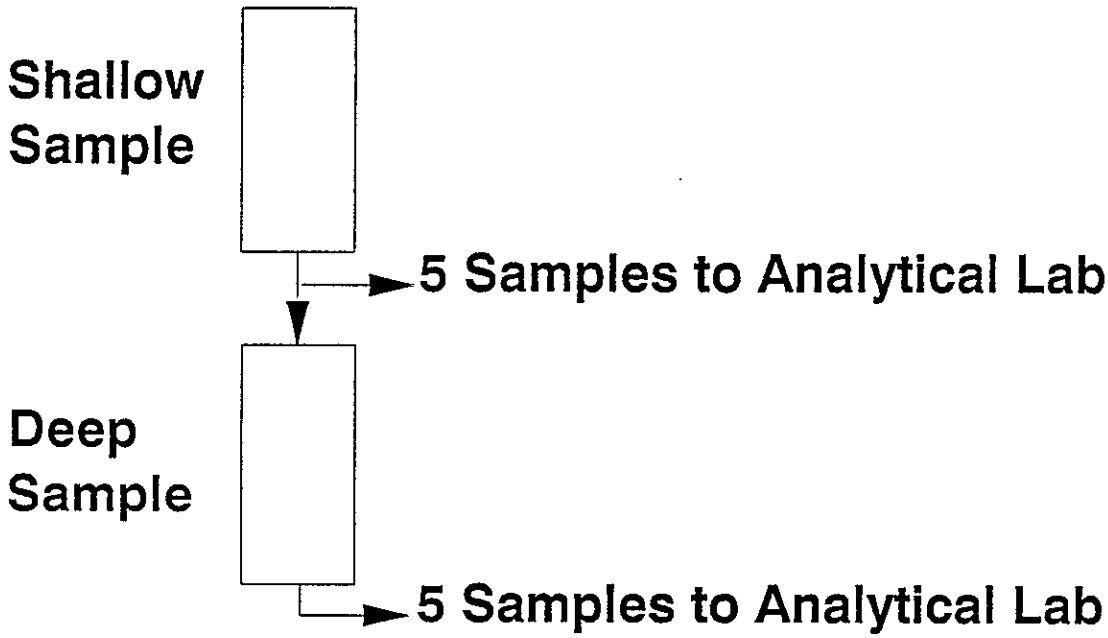
(-) Vacuum required to prevent ponding

(-) Severe evaporation at low water content

(-) Hydraulic Conductivity not measured

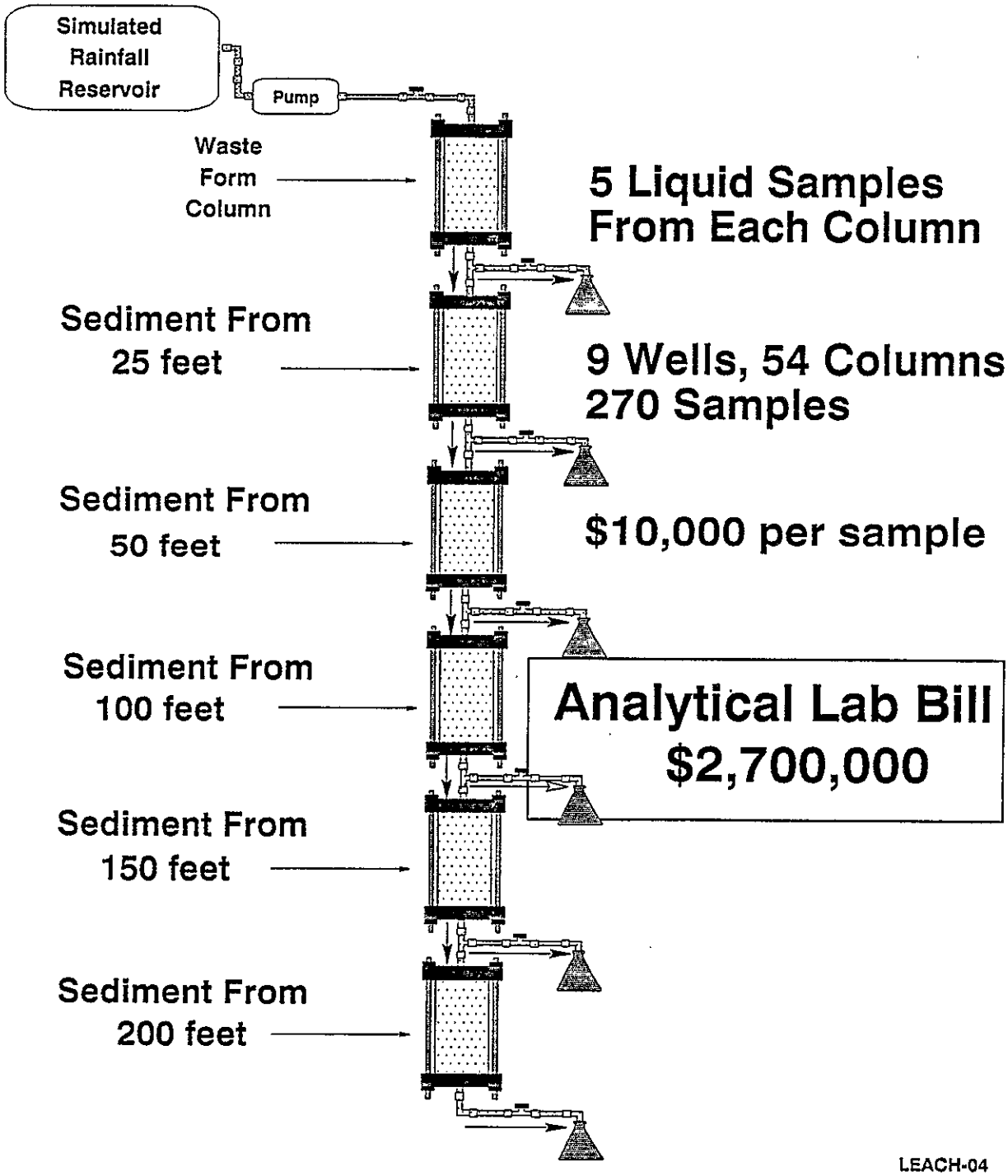
COLUMN LEACH TEST

(2 waste samples, 4 columns total)



20 Liquid Samples Analyzed
4 Solid Samples Analyzed
$240,000 Analytical Lab Bill

200-BP-1 WORKPLAN
COLUMN LEACH CONCEPT



LEACH-04

COLUMN LEACH PROCEDURE

UNSATURATED CONDITIONS

- Field Moisture Content - < 10% by volume
- Unsat. Column Moisture - ~ 20% by volume
  (One Bar Vacuum Limit for Sampling)
- Sat. Column Moisture - ~ 10% by volume

- Dose Rate Dependence

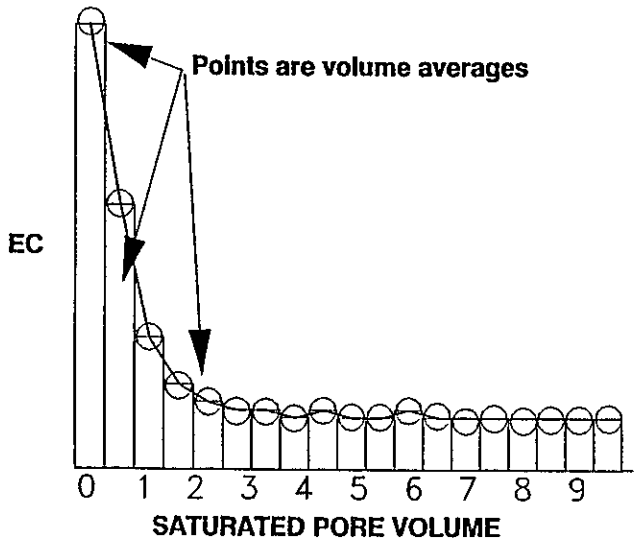
  0 to 25 mr/hr Can Do Unsaturated Leach
  25 to 100 mr/hr Have to do Saturated Leach
  > 100 mr/hr Hot Cell

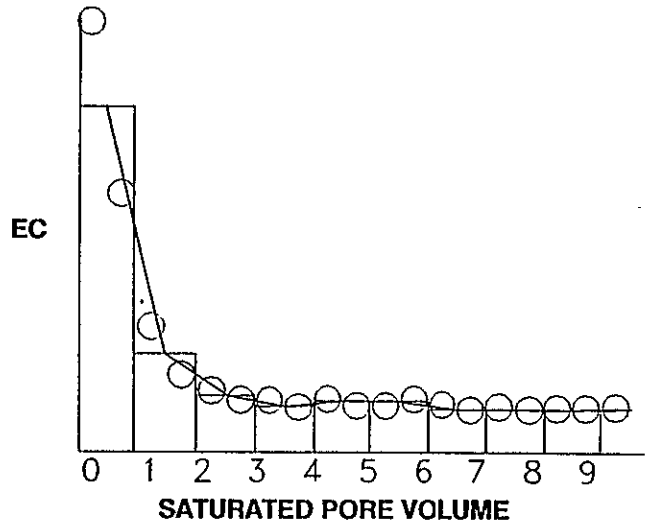
- Equipment is Commercially Available
  and has been ordered

COLUMN LEACH PROCEDURE

SIMULATED UNSATURATED CONDITIONS

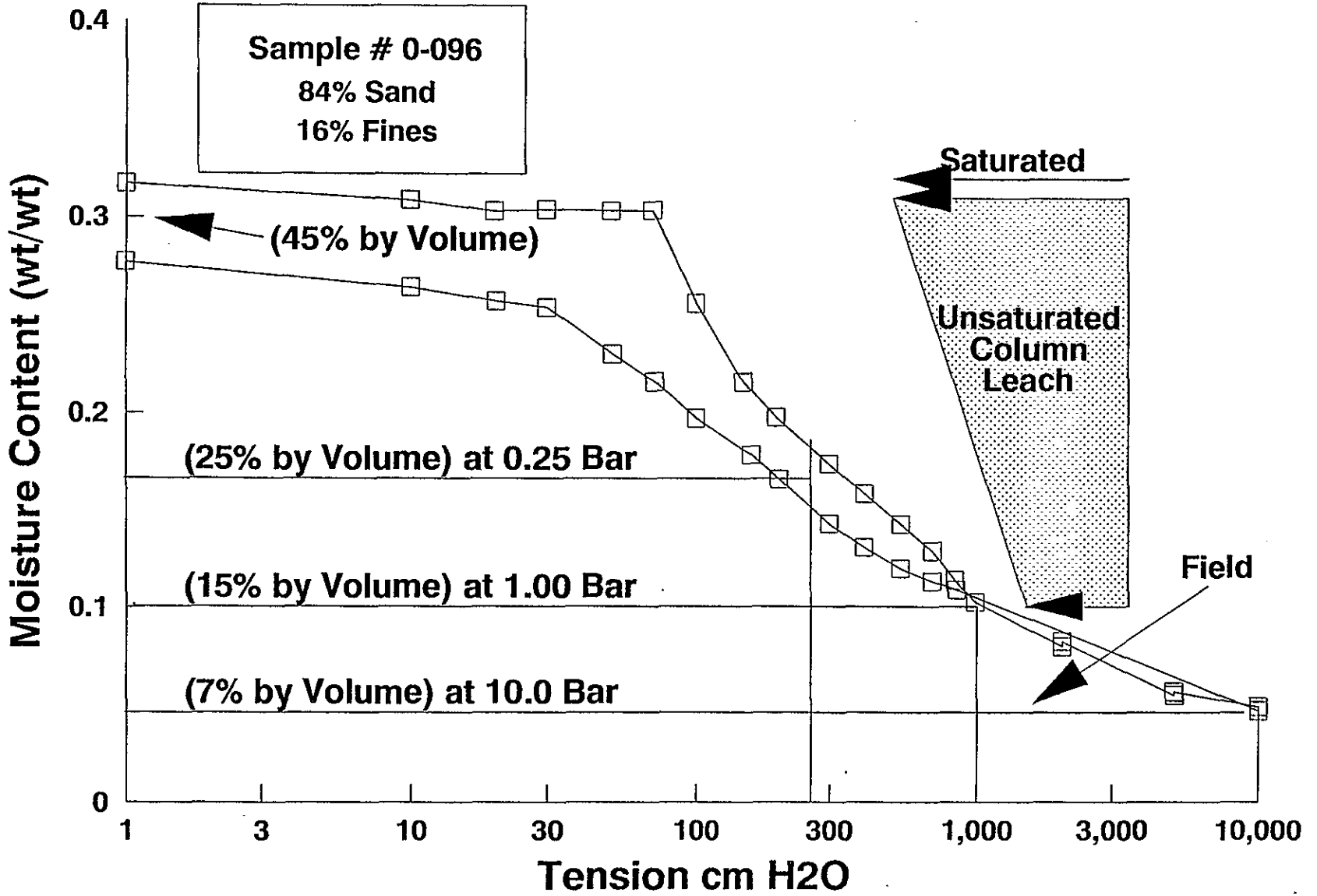
Smaller Sample Volumes





COLUMN LEACH TESTING

- o TASK 10B, Saturated Test Procedure Ready
- o Test Scheduled for May 1991
- o Unsaturated Column Leach Test Ready Feb 91
- o Can Simulate Unsaturated Leach With Saturated Leach Smaller Sample Volumes



LEACH-10

INTACT SAMPLES